

the localities in which each species is to be found. In addition to the living plants, the work includes a list of 213 species of fossils, mostly of Cretaceous age, which have been unearthed on Long Island. Following this, a section is devoted to the insect galls of the region, of which 95 are included. An extensive bibliography of works dealing with the flora of Long Island and vicinity completes this very comprehensive guide.

ALEXANDER F. SKUTCH

PROCEEDINGS OF THE CLUB

MEETING OF DECEMBER 8, 1925

This meeting was held at the American Museum of Natural History. The following were elected to membership in the Club:

Mr. Frank W. Johnson, 1362 Amherst Street, Buffalo, N. Y.

Miss Katherine W. Browne, Barnard College, New York City.

Professor Richards addressed the Club on "Some features of the desert vegetation of Southern Arizona.

A series of lantern slides, illustrating the region around Tucson, were shown with running comment by the speaker.

Geographically there are in this region the mountain ranges running up sometimes to as much as 9,000 feet, the bajadas or foothills, and the mesa-like slopes which fall off gradually to the flood plains of the water courses.

There are two rainy seasons in this part of Arizona, together averaging 10-12 inches: the winter rains, which are light, beginning in the middle of November and lasting until the end of March; the summer rains consisting of few storms, often of great violence, lasting through July and early August.

Three vegetational regions may be considered, corresponding in a general way to the geographical features.

1. The montane region, where the flora is not xerophytic in the strictest sense, for the precipitation is relatively greater here than at lower altitudes. At the higher elevations, species of pine, juniper, live oaks and other arboreal forms are characteristic.

2. The flood plain region, with its cottonwoods and mesquite, is even less typically xerophytic, since the level of the ground water is here well within the reach of the roots of such forms.

The shallower rooted forms may indeed be of a more desert type.

3. The region of the bajadas and mesa-like slopes which lies between, supports a flora which is typically xerophytic, for here during the major part of the year the water supply is at a minimum.

There can, in a broad sense, be distinguished three types of desert vegetation. First, the water storage type with its massive parenchymatous tissues and with the practical absence of leaves of which the cactus is the best example: next the type which meets the dry season by dropping its leaves and entering into a resting condition, out of which it may awaken with surprising speed when the rains come. This is well represented by *Fouquieria splendens*, sometimes incorrectly called the "cane cactus." The last type is that which has leathery leaves which it maintains even in the dry season, of which the creosote bush, *Covillea tridentata*, may be taken as an example.

In addition, a fourth type may be added—the annuals, which are really not xerophytic, growing both winter and summer in the moist season. The seeds of the winter annuals do not germinate in the summer rainy season, but wait until the following winter; nor do the summer annuals develop in the winter. Thus there are two quite distinct annual floras.

The respiration of the succulent type as illustrated by cacti was briefly spoken of at the end. It has long been known that such plants absorb far more oxygen than they emit of carbon dioxide, whereas in the typical plant the amounts are approximately equal. This is due to the fact that the oxidation of the reserve carbohydrates is only partial and stops at the formation of an acid, in this case apparently malic acid. This acid, however, is very unstable in light and during the daytime it is split into simpler products, of which carbon dioxide is the final one. Carbon dioxide arising from the photolytic effect of light on the accumulated acid is not however to be regarded as a true respiratory by-product. One of the results of this action of light is to cause a periodicity in the acidity of the tissues, which rises at night and falls as the day progresses, to rise again as the sun sinks. The amount of carbon dioxide must also vary, and indeed on a bright and warm day the cactus, despite the fact that the photosynthetic processes are active, actually gives forth this

gas. The problem is thus a very complicated one. The true respiratory activity of the cactus can only be studied in the absence of light and at moderate temperatures.

ARTHUR H. GRAVES,
Secretary.

MEETING OF JANUARY 12, 1926

The meeting of this date was held at the American Museum of Natural History.

According to the usual program of the annual business meeting, the reports of the various officers for the year were next received.

The Secretary reported that 15 regular meetings of the Club had been held during the year, with a total attendance of 486, an average of 32 persons per meeting. Twenty-six new members were elected during 1925; four were lost through death and six others through resignation. Deducting those dropped for non-payment of dues, the present membership is 291.

The Treasurer, Dr. R. C. Benedict, reported gross receipts of \$4852.63 including a balance of \$1071.16 brought over from 1924. Disbursements amounted to \$4197.47, leaving a balance of \$655.16.

Dr. T. E. Hazen, Editor of the Bulletin, reported that Volume 52 contained 553 pages and 10 plates.

The Editor of *Torreyia*, Mr. George T. Hastings, reported the publication of six bi-monthly numbers totaling 138 pages. Dr. Michael Levine, the Business Manager, reported an income of about \$105 from advertisers.

Dr. H. M. Denslow, Honorary Custodian of the local herbarium of the New York Botanical Garden reported accessions during the year of about 800 sheets, and spoke of the large collection of the late Eugene Pintard Bicknell presented by Mrs. Bicknell. The number of cases must be increased for the incorporation of this collection.

Dr. M. A. Howe, Delegate to the Council for the New York Academy of Sciences, reported upon attendance at meetings of the Council.

The Chairman of the Field Committee, Dr. Alfred Gundersen, reported that, as in previous years, the field meetings had been held in conjunction with the New York Microscopical Society.

Thirty-nine field meetings were held with an average attendance of 10 persons per meeting.

By unanimous vote of the Club, all officers were reelected for the ensuing year with the exception of Dr. Howe, Delegate to the Council of the New York Academy of Sciences, since Dr. Howe is now a member of the Council in the Academy. Dr. Barnhart was elected in his place.

Dr. Howe recommended that, as in the past, the records of the Club be carefully preserved and bound together for each year.

ARTHUR H. GRAVES,
Secretary.

MEETING OF JANUARY 27, 1926

This meeting was held at the Museum Building of the N. Y. Botanical Garden. The minutes of the meeting of January 12 were read and approved.

Mr. Solomon Kenner, 30 Osborn St., Brooklyn, N. Y., was elected to membership. The following resignations were accepted: Dr. N. E. Stevens, Mr. Augustus O. Bourn, Jr., Mrs. Paula Milton, Mrs. Reginald Hunter Colley, Dr. M. A. Raines, Mrs. Louis B. Fairbanks.

The Secretary spoke of the sudden death of Dr. Tower the day before. Although not a member, Dr. Tower, Secretary of the N. Y. Academy of Sciences, had long been in close touch with the affairs of the Club and had always manifested a splendid spirit of cooperation.

The death of Mr. C. H. Bissell of Southington, Conn., in April, 1925, was also read into the minutes. Mr. Bissell was well known for his work on ferns and also as a collaborator in preparation of the Catalog of the Ferns and Flowering plants of Connecticut, published in 1910.

Dr. Barnhart, Chairman of the Budget Committee offered the following estimates for 1926:

<i>Estimated Income</i>		<i>Estimated Outgo</i>	
Membership dues	\$1500.00	Bulletin	\$2000.00
Bulletin	1000.00	Editor (Bulletin)	100.00
Torreyia	150.00	Torreyia	500.00
Memoirs	100.00	Index Cards	600.00
Index Cards	650.00	Treasurer	150.00

Interest	\$150.00	Bibliographer	\$175.00
Advertisements	100.00	Sundries	125.00
Miscellaneous sales	100.00		
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	\$3750.00	Bulletin (from surplus)	\$3650.00
			600.00
			<hr/>
			\$4250.00

The report of the Budget Committee was adopted by the vote of the Club.

In a brief talk which followed, entitled "The present status of the American chestnut," the Secretary sketched the history of the chestnut blight since its first discovery in the N. Y. Zoological Garden by Mr. H. W. Merkel in 1904. At the present time the disease is spreading in the southern limits of the range of the chestnut and may probably be found in any county where chestnut grows. Experiments carried on by the Brooklyn Botanic Garden in collaboration with the U. S. Dept. of Agriculture have shown that the root tissues are much more resistant than the trunk or stem tissues, hence the fact that in many places coppice or basal shoots are springing from trees apparently killed by the blight. The fact that in some cases these shoots are now bearing nuts is of great significance and importance, since it will enable the chestnut to maintain itself and postpone still further into the future its possible extinction as a species.

ARTHUR H. GRAVES,
Secretary.

NEWS NOTES

Fourth International Botanical Congress. Investigators and teachers of the plant sciences, representing all aspects of botany, are invited to attend the International Congress of Plant Sciences to be held in Ithaca, August 16-23, 1926. The congress will be divided into about twelve sections, each with its own program. There will be round table or informal discussions, exhibitions and excursions and inspection trips. General communications concerning the congress should be addressed to Dr. B. M. Duggar, Missouri Botanical Garden, St. Louis, Mo.